



The Chemical Company

Crop Protection

**VIA ELECTRONIC MAIL:** phann@waterboards.ca.gov

June 9, 2008

Mr. Paul Hann  
Environmental Scientist  
Central Valley Water Quality Control Board (CVWQCB)  
11020 Sun Center Drive  
Rancho Cordova, CA 95670-6114

**Re: BASF Corporation Comments on the Compound Specific Information for the Relative-Risk Evaluation for Pesticides Used in the CV Pesticide Basin Plan Amendment.**

Dear Mr. Hann:

BASF Corporation would like to address the compound specific information within the CVWQCB's Draft Document entitled Relative-Risk Evaluation for Pesticides Used in the Central Valley Pesticide Basin Plan Amendment Project Area. Errors in data values and inaccurate statements were noted for fipronil, pendimethalin, and pyraclostrobin. Corrections are detailed below along with numbered references. For comments regarding the relative-risk evaluation methodology please see the Western Plant Health Association (WPHA) comments submitted on June 6, 2008.

**Fipronil:**

- Water solubility = 2.4 mg/L (report stated 22 mg/L) [1,2]
- Soil  $K_{oc}$  (mean value) = 727 mL/g (report stated 749) [1,3]
- Fipronil 96-hour  $LC_{50}$  = 0.14 ug/L for *Mysidopsis bahia* (report stated 0.056 ug/L) [1,2,4]
- The statement "fipronil is an alternate of carbofuran for rice field" is inaccurate. Currently there is no registered use for fipronil in rice.
- Note the pesticide use data for fipronil from DPR's Pesticide Use Report (PUR) database is inaccurate due to reporting errors from professional structural pest control applicators. Instead of reporting the actual formulated product used, applicators accidentally recorded the diluted product, causing over-reporting by 150 times. [4,5]

**Pendimethalin:**

- Water solubility = 0.3 mg/L (report stated 0.225 mg/L) [6]
- Soil  $K_{oc}$  (average of 5 values) = 17,040 mL/g (report stated 13,400) [6]
- Remove the inaccurate statement "The annual use may be expected to be lower in the future because the US EPA issued a notice to cancel the use of pendimethalin voluntarily". Pendimethalin is fully registered for many uses in California. Older pendimethalin product formulations have been voluntarily cancelled in the past.



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Pyraclostrobin:

- Water solubility = 1.9 mg/L at pH 7, 20 °C (report stated 19 mg/L) [7]
- Soil  $K_{oc}$  (mean of 6 values) = 9304 mL/g (report stated 93) [7]

#### References

- 1) U.S. EPA. 1996. EPA 737-F-96-005. Office of Pesticide Programs, Washington, D.C., pp. 1-10.
- 2) A.S. Gunasekara and T. Troung. 2007. Environmental fate of fipronil. California Environmental Protection Agency, Sacramento, CA, pp. 4-21.
- 3) U.S. EPA. MRID No. 44039003
- 4) K. Moran. 2007. Urban use of the insecticide fipronil: Water quality implications. Memo from TDC Environmental.
- 5) TDC Environmental. 2006. Pesticides in Urban Surface Water: Annual Research and Monitoring Update 2006. Prepared for the San Francisco Estuary Project, pp.4-6.
- 6) U.S. EPA. MRID No. 43041901
- 7) U.S. EPA. 2007. PC Code No. 099100 (see submitted table)

Sincerely,  
BASF Corporation

/s/ *Patricia Rice*

Patricia Rice, Ph.D.  
State Regulatory Affairs Manager

given leaf. In this context, they are classified as 'surface systemic' or 'mesosystemic' fungicides. Headline Fungicide (23.6 % pyraclostrobin), Pristine Fungicide (12.8% pyraclostrobin.), and Insignia Fungicide (20.0 % pyraclostrobin) are proposed for use on food and non-food crops as the end use products. **Figure 1** shows the molecular structure of pyraclostrobin, and **Table 3** shows its chemical properties.

**Figure 1.** Molecular structure of pyraclostrobin.

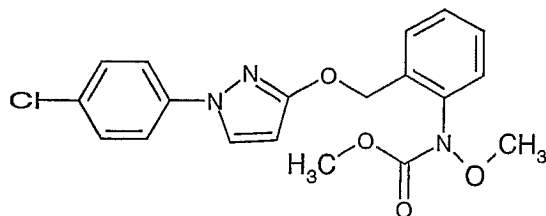


Table 3 Physical-chemical properties of Pyraclostrobin.		
Parameter	Value and Unit	Source
Chemical Name	methyl N-{2-[1-(4-chlorophenyl)-1H-pyrazol-3-yloxy]methyl}phenyl (N-methoxy)carbamate	Product Chemistry
CAS Chemical Name	Methyl[2-[[[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxy]methyl]phenyl]methoxycarbamate	Product Chemistry
CAS Number	175013-18-0	Product Chemistry
Synonyms	methyl N-[[[1-(4-chlorophenyl) pyrazol-3-yl]oxy]o-tolyl]N-methoxycarbamate	Product Chemistry
PC Code	099100	Product Chemistry
Empirical Formula	C <sub>19</sub> H <sub>18</sub> ClN <sub>2</sub> O <sub>4</sub>	Product Chemistry
Molecular Weight <sup>1</sup>	387.82 g/mole	Product Chemistry
Appearance	Solid	Product Chemistry
Color	White	Product Chemistry
Melting Point	63.7-65.2 °C	Product Chemistry
Octanol-Water Partition Coefficient (log K <sub>ow</sub> at 25°C)	4.18 at pH 6.5 3.80 at pH 6.2	MRID # 45118422
pKa	No value – does not disassociate in water	MRID # 45420101
Vapor pressure at 20°C	1.95 x 10 <sup>-8</sup> torr <sup>1</sup>	Product Chemistry
Water Solubility at 20°C	2.41 mg/L – deionized water <sup>1</sup> 2.3 mg/L – pH 4 1.9 mg/L – pH 7 and pH 9	Product Chemistry
Henry's law constant	4.12 x 10 <sup>-9</sup> atm m <sup>3</sup> /mole <sup>1</sup>	Based on solubility and vapor pressure
Hydrolysis half-life at 25°C	Stable at pH 5, 7, and 9 <sup>1</sup>	MRID # 45118627

Source:

U.S. EPA 11/20/2007

PC Code - 099100

Table 3 Physical-chemical properties of Pyraclostrobin		
Parameter	Value and Unit	Source
Aqueous photolysis half-life at 22°C	$t_{1/2} = 0.05$ days and $0.08$ days <sup>1</sup> at pH 5	MRID # 45118629
Soil photolysis half-life at 22°C	$t_{1/2} = 10$ days (continuous irradiation) $t_{1/2} = 11$ days (12 hr light/12 hr dark cycle)	MRID # 45118630
Aerobic soil metabolism half-life at 20°C	$t_{1/2} = 81.5, 83.5, 105, 216.6, 277.2,$ and $330$ days (in six soil studies) $t_{1/2} = 248.14$ days (upper 90 <sup>th</sup> percentile of six soil studies) <sup>1</sup>	MRID # 45118631, 45118632, 45367504
Anaerobic soil metabolism half-life at 20°C	$t_{1/2} = 3.0$ and $3.14$ days (in two soil studies) $t_{1/2} = 3.3$ days (upper 90 <sup>th</sup> percentile of six soil studies) <sup>1</sup>	MRID # 45118635, 45118636
Aerobic aquatic metabolism half-life	Non-acceptable study Assume $t_{1/2} = 496.28$ (twice the aerobic soil metabolism half life) <sup>1</sup>	MRID # 45118631, 45118632
Anaerobic aquatic metabolism half-life	No study submitted Assume $t_{1/2} = 6.6$ (twice the anaerobic soil metabolism half life) <sup>1</sup>	MRID # 45118635, 45118636
Soil-water partition coefficient ( $K_d$ )	60 (Germany sand) 304 (Germany loamy sand) 142 (Germany sandy loam) 30 (USA loamy sand) 54 (USA sandy loam) 368 (Canada sandy loam)	MRID # 45160502, 45160503, 45118703, 45118701, 45118702
Partition coefficient normalized to organic carbon content ( $K_{oc}$ )	7,889 (Germany sand) 160,000 (Germany loamy sand) 7,889 (Germany sandy loam) 6,000 (USA loamy sand) 9,000 (USA sandy loam) 9,436 (Canada sandy loam)  9,304 (mean Koc of six soil studies) <sup>1</sup>	MRID # 45160502, 45160503, 45118703, 45118701, 45118702
Freundlich adsorption coefficient ( $K_F$ )	Same as $K_d$ (slope of Freundlich absorption/desorption isotherms approaches 1 in all soil studies)	MRID # 45160502, 45160503, 45118703, 45118701, 45118702
Freundlich coefficient normalized to organic carbon content ( $K_{Foc}$ )	Same as $K_{oc}$ (slope of Freundlich absorption/desorption isotherms approaches 1 in all soil studies)	MRID # 45160502, 45160503, 45118703, 45118701, 45118702

<sup>1</sup> When selecting parameters, refer to Guidance for Selecting Input Parameters in Modeling the Environmental Fate and Transport of Pesticides; Version I, February 28, 2002.

Source:

U.S. EPA 11/20/2007

PC Code: 099100